

**POWER CONVERTER METHOD AND APPARATUS  
HAVING HIGH INPUT POWER FACTOR AND LOW  
HARMONIC DISTORTION**

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**ABSTRACT**

The invention proposes a single stage, single switch, input-output isolated converter configuration using a hybrid combination of forward and flyback converters. The converter operates at a high input power factor with a regulated DC output voltage. It makes use of a novel control scheme utilizing duty cycle control at two discrete operating frequencies. Although the invention employs two frequencies, it does not use a continuous frequency variation. The proposed configuration has the advantage of reduced peak current stresses on the components and is specifically suited for 'buck' applications where low DC output voltages (e.g. 24V, 48V) are needed. The proposed configuration will be of specific interest to industries associated with battery charging and uninterruptible power supply (UPS) systems. Apart from having several competitive features compared with prior art techniques, the proposed dual frequency operation scheme reduces the amplitude of its noise spectrum by spreading it over a wider frequency range thus making it more electromagnetic compatible.

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